

WE CLAIM:

1. A deployable truss comprising:

a plurality of column members connected at their ends to form a deployable truss that forms a rigid structure in a deployed state and that has a stowage volume less than its deployed volume in a collapsed state, wherein at least some of the column members comprise column assemblies including a plurality of strut members connected to each other at a first end of the column assembly and a second end of the column assembly.
2. A deployable truss according to claim 1, wherein strut members of a column assembly are symmetrically arranged about the centerline of the column assembly.
3. A deployable truss according to claim 1, wherein strut members of a column assembly are connected to each other at a location between the first and second ends of the column assembly when the truss is in the deployed state.
4. A deployable truss according to claim 3, wherein the strut members of the column assembly are rigidly connected using a rigidizable resin.
5. A deployable truss according to claim 4, wherein the rigidizable resin comprises a thermoplastic resin.
6. A deployable truss according to claim 4, wherein the rigidizable resin comprises a UV curable resin.
7. A deployable truss according to claim 3, wherein at least some of the strut members of the column assembly include a helical twist around the longitudinal centerline of the column assembly.

8. A deployable truss according to claim 1, wherein each column assembly further comprises a spacer connecting the strut members of the column assembly at a location between the first and second ends of the column assembly.
9. A deployable truss according to claim 8, wherein the spacer connects the strut member of the column assembly near the midpoint between the first and second ends of the column assembly.
10. A deployable truss according to claim 8, wherein the spacer is collapsible to a stowed configuration when the truss is in the collapsed state and expandable to a deployed configuration that radially spaces the strut members of the column assembly away from the longitudinal centerline of the column assembly when the truss is in the deployed state.
11. A deployable truss according to claim 8, wherein the spacer comprises a rigid spacer that radially spaces the strut members of the column assembly away from the longitudinal centerline of the column assembly a fixed distance in both the deployed and collapsed states.
12. A deployable truss according to claim 11, wherein the spacer is V-shaped.
13. A deployable truss according to claim 8, wherein the strut members of the column assembly taper toward the centerline of the column assembly at the first and second ends of the column assembly when the truss is in the deployed state.
14. A deployable truss according to claim 1, wherein each column assembly further comprises a plurality of spacers connecting the strut members of the column assembly, each of the spacers connecting the strut members of the column assembly at a different location between the first and second ends of the strut members.
15. A deployable truss according to claim 14, wherein the spacer is collapsible to a stowed configuration when the truss is in the collapsed state and expandable to a deployed configuration

that radially spaces the strut members of the column assembly away from the longitudinal centerline of the column assembly when the truss is in the deployed state.

16. A deployable truss according to claim 14, wherein the spacer comprises a rigid spacer that radially spaces the strut members of the column assembly away from the longitudinal centerline of the column assembly a fixed distance in both the deployed and collapsed states.

17. A deployable truss according to claim 16, wherein the spacer is V-shaped.

18. A deployable truss according to claim 17, wherein the spacer of each column assembly is arranged to permit nesting with the spacer of another column assembly when the truss is in the collapsed state.

19. A deployable truss according to claim 14, wherein the strut members of the column assembly taper toward the centerline of the column assembly at the first and second ends of the column assembly when the truss is in its deployed state.

20. A deployable truss according to claim 1, wherein at least some of the strut members comprise tubes.

21. A deployable truss according to claim 1, wherein at least one of the strut members comprise rods.

22. A deployable truss according to claim 1, wherein the strut members are formed from a continuous fiber reinforced composite material.

23. A deployable truss according to claim 22, wherein the continuous fiber reinforced composite material comprises glass fibers.

24. A deployable truss according to claim 22, wherein the continuous fiber reinforced composite material comprises graphite fibers.

25. A deployable truss according to claim 1, wherein the column assemblies are tapered on at least one end.
26. A column assembly for a deployable truss, the column assembly comprising:
a plurality of strut members connected to each other at a first end of the column assembly and a second end of the column assembly;
a spacer connecting the strut members of the column assembly at a location between the first and second ends of the column assembly and that is capable of radially spacing the strut members away from the longitudinal centerline of the column assembly a distance greater than the first and second ends of the strut members are positioned from the centerline of the column assembly.
27. A column assembly according to claim 26, wherein strut members of a column assembly are symmetrically arranged about the centerline of the column assembly.
28. A column assembly according to claim 26, wherein at least some of the strut members of the column assembly include a helical twist around the longitudinal centerline of the column assembly.
29. A column assembly according to claim 26, wherein the spacer is collapsible to a stowed configuration and expandable to a deployed configuration that radially spaces the strut members of the column assembly away from the longitudinal centerline of the column assembly.
30. A column assembly according to claim 26, wherein the spacer comprises a rigid spacer that radially spaces the strut members of the column assembly away from the longitudinal centerline of the column assembly.
31. A column assembly according to claim 30, wherein the spacer is V-shaped.

32. A column assembly according to claim 29, wherein the strut members of the column assembly taper toward the centerline of the column assembly at the first and second ends of the column assembly when the spacer is in the deployed configuration.

33. A column assembly according to claim 26, further comprising a plurality of spacers connecting the strut members of the column assembly, each of the spacers connecting the strut members of the column assembly at a different location between the first and second ends of the column assembly.

34. A column assembly according to claim 26, wherein at least some of the strut members comprise tubes.

35. A column assembly according to claim 26, wherein at least one of the strut members comprise rods.

36. A column assembly according to claim 26, wherein the strut members are made from a continuous fiber reinforced composite material.

37. A column assembly according to claim 36, wherein the continuous fiber reinforced composite material comprises glass fibers.

38. A column assembly according to claim 36, wherein the continuous fiber reinforced composite material comprises graphite fibers.

39. A column assembly according to claim 26, wherein the strut members taper toward the centerline of the column assembly at the first and second end of the column assembly.

40. A deployable truss comprising:

a plurality of contiguously attached deployable bays forming a rigid space truss when in a deployed state and having a stowage volume substantially less than their deployed volume when

in a collapsed state, each bay comprising a plurality of column members, wherein at least some of the column members comprise column assemblies having a centerline; and

wherein each column assembly comprises a plurality of strut members connected to each other at a first end of the column assembly and a second end of the column assembly, the strut members being symmetrically arranged about the centerline of the column assembly.